TERT

Telomerase reverse transcriptase (abbreviated to TERT, or hTERT in humans) is a catalytic subunit of the enzyme telomerase, which, together with the telomerase RNA component (TERC), comprises the most important unit of the telomerase complex.

Telomerase is part of a distinct subgroup of RNA-dependent polymerases. Telomerase lengthens telomeres in DNA strands, thereby allowing senescent cells that would otherwise become postmitotic and undergo apoptosis to exceed the Hayflick limit and become potentially immortal, as is often the case with cancerous cells. To be specific, TERT is responsible for catalyzing the addition of nucleotides in a TTAGGG sequence to the ends of a chromosome's telomeres.

This addition of repetitive DNA sequences prevents degradation of the chromosomal ends following multiple rounds of replication.

hTERT absence (usually as a result of a chromosomal mutation) is associated with the disorder Cri du chat.

In gliomas, TERT expression and TERT promoter mutation are considered to reliably indicate telomerase activation, while ATRX mutation and/or loss indicates an alternative lengthening of telomeres (ALT). However, these relationships have not been extensively validated in tumor tissues.

TERT promoter mutation

TERT promoter mutation

Telomerase reverse transcriptase promoter

see Telomerase reverse transcriptase promoter.